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REMARKS

Paragraph [0004] of the specification has been amended to update the status of the patent applications listed therein. Upon entry of this Amendment, claims 1-34 remain pending in the application, claims 3, 13, 18, 26, and 28-34 being withdrawn from consideration at this time. Reconsideration and allowance of the claims in this application are respectfully requested in view of the following remarks.

In the Office Action dated October 6, 2004, claims 1, 2, 4, 11, 14-17, 19, and 27 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,796,447 to Laundry et al. (hereinafter "the '447 patent"). Applicants respectfully traverse this rejection.

Independent claim 1 of the present application recites an intelligent assist device that includes, *inter alia*, "a controller operatively coupled with the sensor and the trolley, the controller controlling movements of the trolley, the controller estimating an amount of oscillation in the support that does not correspond to the motion imparted by the human operator and adjusting movements of the trolley based thereon." The '447 patent does not disclose or suggest this feature. Rather, control system of the '447 patent estimates the motion imparted to the support by the operator, and adjusts the movement of the crane based on the estimated force applied by the operator.

Although the '447 patent recognizes the same general problem being addressed by Applicant's application, the approach used in the '447 patent is quite different. The '447 patent discloses a crane control system that uses a control strategy that is based on estimating the force applied by the operator to the load. ('447 patent, col. 1, lns. 42-44.) An estimated operator force is used "to generate the desired position of the load by passing it through a desired impedance block 42." ('447 patent, col. 5, lns. 48-50.) The force applied by the operator to the load is estimated by using sensors (32, 33) that provide amplitude and directional information on movement of the load (20). ('447 patent, col. 2, lns. 12-30.) A series of algorithms are programmed into the crane control (40) to estimate the operator force. ('447 patent, col. 2, ln. 45 - col. 5, ln. 44.) The estimated operator force is then used to generate the desired position of the load by passing it through an impedance block (42). ('447 patent, col. 5, lns. 48-59.) The '447 patent states that the impedance block (42) is used to specify a particular performance for the motion of the load (20), that the "feel" of the load for the worker can be changed from very light (low damping) to heavy (extreme damping), and that anti-swing may be achieved with desired load impedance. ('447 patent, col. 5, ln. 54 - col. 6, ln. 5.) Nowhere does the '447 patent even remotely suggest that the control system

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estimates an amount of oscillation in the support that does not correspond to the motion imparted by the human operator and adjusting movements of the crane based on the estimated amount of oscillation, as recited by claim 1. Accordingly, Applicants submit that independent claim 1 and claims 2-14 that depend from claim 1 are patentable over the '447 patent and respectfully request that the rejection be withdrawn.

Independent claim 15 of the present application recites a method for controlling movement of an overhead moveable trolley in an intelligent assist device that includes, *inter alia*, "estimating an amount of oscillation in the device that does not correspond to the motion imparted by the human operator; and adjusting movements of the trolley based upon the estimate." The '447 patent does not disclose or suggest these features.

As discussed above, the '447 teaches estimating operator force to generate the desired position of the load by passing it through a desired impedance block. ('447 patent, col. 5, lns. 48-50.) The '447 patent does not disclose or suggest "estimating an amount of oscillation in the device that does not correspond to the motion imparted by the human operator; and adjusting movements of the trolley based upon the estimate," as recited in claim 15. Accordingly, Applicants submit that independent claim 15 and claims 16-27 that depend from claim 15 are patentable over the '447 patent and respectfully request that the rejection be withdrawn.

In the Office Action, claims 1 and 15 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,575,317 to Taylor (hereinafter "the '317 patent"). Applicants respectfully traverse this rejection.

As stated above, independent claim 1 recites an intelligent assist device that includes, *inter alia*, "a controller operatively coupled with the sensor and the trolley, the controller controlling movements of the trolley, the controller estimating an amount of oscillation in the support that does not correspond to the motion imparted by the human operator and adjusting movements of the trolley based thereon." The '317 patent does not disclose or suggest this feature.

Instead, the '317 teaches "arranging a sensor pendulum and associated X and Y sensors above a crane hoist while also sensing the mass of any load suspended from the hoist. Such a mechanical arrangement of motion and load sensors enables a crane control system to derive more reliable information on worker input force to the load and more reliably drive the crane in a desired direction to move the hoisted load to a position indicated by the worker." ('317 patent at col. 1, lns. 55-62.) Thus, like the '447 patent, the '317 patent is also directed

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to improving the measurement of the worker's input force to the load to move the crane. The '317 does not disclose or suggest a controller that estimates "an amount of oscillation in the support that does not correspond to the motion imparted by the human operator and adjusting movements of the trolley based thereon." Accordingly, Applicants submit that independent claim 1 and claims 2-14 that depend from claim 1 are patentable over the '317 patent and respectfully request that the rejection be withdrawn.

As stated above, independent claim 15 recites a method for controlling movement of an overhead moveable trolley in an intelligent assist device that includes, *inter alia*, "estimating an amount of oscillation in the device that does not correspond to the motion imparted by the human operator; and adjusting movements of the trolley based upon the estimate." The '317 patent does not disclose or suggest these features.

As discussed above, the '317 patent teaches sensing the mass of the load being supported by the crane, detecting the lateral movement of the sensing pendulum (part 30 in Figure 2) caused by input from a worker, and moving a crane trolley or bridge in the direction indicated by the worker. ('317 patent at col. 3, lns. 11-24.) The '317 does not disclose or suggest "estimating an amount of oscillation in the device that does not correspond to the motion imparted by the human operator; and adjusting movements of the trolley based upon the estimate," as recited in claim 15. Accordingly, Applicants submit that independent claim 15 and claims 16-27 that depend from claim 15 are patentable over the '317 patent, and respectfully request that the rejection be withdrawn.

In the Office Action, claims 5-7, 9, 10, 20-22, 24, and 25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the '447 patent in view of U.S. Patent No. 6,460,711 to Kato et al. (hereinafter "the '711 patent"). Applicants respectfully traverse this rejection.

Claims 5-7, 9, and 10 depend from independent claim 1. As discussed above, independent claim 1 is patentable over the '447 patent. The '711 patent does not cure the deficiencies of the '447 patent. The '711 patent teaches a suspension type hoisting apparatus that is able to suppress sway of a part of the apparatus in a short time. ('711 patent at col. 6-10.) Nowhere does the '711 patent disclose that there is a sensor that senses a characteristic of motion imparted by a human operator to the device, or "a controller operatively coupled with the sensor and the trolley, the controller controlling movements of the trolley, the controller estimating an amount of oscillation in the support that does not correspond to the motion imparted by the human operator and adjusting movements of the trolley based

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thereon,” as recited by claim 1. Accordingly, Applicants submit that claims 5-7, 9, and 10 are patentable over the ‘447 patent in view of the ‘711 patent, and respectfully request that the rejection be withdrawn.

Claims 20-22, and 24 depend from independent claim 15. As discussed above, independent claim 15 is patentable over the ‘447 patent. The ‘711 patent does not cure the deficiencies of the ‘447 patent. The ‘711 patent does not disclose or suggest “estimating an amount of oscillation in the device that does not correspond to the motion imparted by the human operator, and adjusting movements of the trolley based upon the estimate,” as recited by claim 15. Accordingly, Applicants submit that claims 20-22, and 24 are patentable over the ‘447 patent in view of the ‘711 patent, and respectfully request that the rejection be withdrawn.

In the Office Action, claims 8 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the ‘447 patent in view of the ‘711 patent, and further in view of U.S. Patent No. 4,284,978 to Yucius (hereinafter “the ‘978 patent”). Applicants respectfully traverse this rejection.

Claim 8 depends from independent claim 1. As discussed above claim 1 is patentable over the ‘447 patent and the ‘711 patent. The ‘978 patent does not cure the deficiencies of the ‘447 and ‘711 patents. The ‘978 patent discloses a control system for a conveying or hoist system. (‘978 patent, col. 1, lns. 5-13.) The ‘978 patent does not disclose or suggest that there is a sensor that senses a characteristic of motion imparted by a human operator to the device, or “a controller operatively coupled with the sensor and the trolley, the controller controlling movements of the trolley, the controller estimating an amount of oscillation in the support that does not correspond to the motion imparted by the human operator and adjusting movements of the trolley based thereon,” as recited by claim 1. Accordingly, Applicants submit that claim 8 is patentable over the ‘447 patent in view of the ‘711 patent, and further in view of the ‘978 patent, and respectfully request that the rejection be withdrawn.

Claim 23 depends from claim 15. As discussed above claim 15 is patentable over the ‘447 patent and the ‘711 patent. The ‘978 patent does not cure the deficiencies of the ‘447 and ‘711 patents. The ‘978 patent does not disclose or suggest “estimating an amount of oscillation in the device that does not correspond to the motion imparted by the human operator, and adjusting movements of the trolley based upon the estimate,” as recited in claim 15. Accordingly, Applicants submit that claim 23 is patentable over the ‘447 patent in view

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of the '711 patent, and further in view of the '978 patent, and respectfully request that the rejection be withdrawn.

In the Office Action, claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the '447 patent in view of U.S. Patent No. 6,668,668 to Peshkin (hereinafter "the '668 patent"). Applicants respectfully traverse the rejection.

Claim 12 depends from independent claim 1. As discussed above, claim 1 is patentable over the '447 patent. The '668 patent does not cure the deficiencies of the '447 patent. The '668 patent teaches a method and device for determining the forces applied to a support member or cable. ('668 patent at col. 1, lns. 5-7.) The '668 patent does not disclose or suggest "a controller operatively coupled with the sensor and the trolley, the controller controlling movements of the trolley, the controller estimating an amount of oscillation in the support that does not correspond to the motion imparted by the human operator and adjusting movements of the trolley based thereon," as recited by claim 1. Accordingly, Applicants submit that claim 12 is patentable over the '447 patent in view of the '668 patent, and respectfully request that the rejection be withdrawn.

All rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

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Respectfully submitted,
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